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SMALL-POX

ITS

Prevention

Restriction and Suppression

PUBLISHED BY

THE ILLINOIS

STATE BOARD OF HEALTH

1907



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SMALL-POX IN ILLINOIS.
"NEVER VACCINATED."

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SMALLPOX IN GERMANY.

Some years ago Dr. Kinyoun, of the Marine Hospital Service, was in Berlin. There he visited the University. He relates this incident: A Russian emigrant appeared in Berlin and soon after developed smallpox. He was sent to the general hospital, where various and sundry afflictions are treated. Now, the professors in the University teach the medical students about smallpox—how the temperature curve runs, how the eruption appears first as a macule, then a papule, then a vesicle, and lastly a pustule, then the stage of desiccation and desquamation. But they have no cases of smallpox to show the students. Indeed, many of the professors themselves have never seen a case, because they have compulsory vaccination, and it is only when an accidental circumstance occurs like the one above mentioned that smallpox ever gets into Germany. When such an accidental case occurs, everybody turns out to see it, as a medical curiosity. So on this occasion the entire faculty of the medical school and the students went to see the man from Russia with smallpox. There were two Italian students in the school and they went also. No one thought to ask if they had been vaccinated. And they had not. Twelve days later the two Italian students came down with smallpox.—*Florida Health Notes.*

INTRODUCTION.

In a circular on the Prevention, Restriction and Suppression of Small-pox, issued by the Illinois State Board of Health in 1902, at which time the disease was epidemic throughout the State, but in a mild, modified form, a warning note was sounded that the mild type of the disease would not continue, but that virulent small-pox might be expected at any time. Attention was called to the high death rate (16 per cent) then reported in England, and this mortality was held up as an example of what Illinois might expect in the future if every means of checking the disease be not used. The prophecy of the State Board of Health has been realized. Indifference to the seemingly harmless modified disease led to carelessness which has permitted it to gain headway in many vicinities. Since 1902 Illinois has experienced a death-rate from small-pox higher than that of England of that year. The mild type of the disease is disappearing; the malignant, loathsome and fatal type is found among us.

In one city in Illinois in 1904, ten patients of fifty afflicted died in four days—*a mortality of twenty per cent!* In another Illinois city thirteen died of fifty-eight afflicted—*a mortality of over twenty-two per cent!*

It is no longer a time for vague apprehension occasioned by serious epidemics in foreign lands. The disease in its virulent form is now a reality. It has invaded the boundaries of the State of Illinois and threatens to reap its harvest of death, disease, suffering, panic, financial and business loss in every city, town or village in the State. It is no longer a time for casual thought and general consideration. It is a time for immediate and decided action.

To-day the virulent form of small-pox, gaining headway not only in Illinois, but in other states, is adding to the burdens of the milder type, the great mortality and severity of illness, productive of shattered health for many who escape death, and greater unrest, more uncontrolled panic and greater suppression of business in affected districts.

But even in the virulent disease, the lesson of vaccination remains pronounced and certain. No case of small-pox has been found in one who has been recently successfully vaccinated. It is the unvaccinated alone who contract the disease readily, who suffer acutely, who succumb to the scourge or who live as a constant menace to those about them. Nurses, attendants and physicians who have never had the disease work among the sufferers with impunity, relying entirely for protection upon vaccination, and the history of small-pox and vaccination proves that this confidence has never been misplaced. That the closest contact of the successfully vaccinated with small-pox patients is not attended with unfortunate results is indicated in instances seen daily by those who care for small-pox patients. In one Illinois family the father was taken with a severe case of small-pox. The wife and children were at once vaccinated and then isolated with him. A fretful baby in the family required constant attention, and, during his convalescence, but while his skin was still covered with pustules and scabs, the father carried the little one day and night and had her constantly with him. The child did not contract the disease. She was vaccinated!

In another case in Illinois an infant of three months contracted small-pox in virulent form. The mother was vaccinated and accompanied the child to the isolation hospital. Here she remained and cared for the infant, nursing it at her breast. One can hardly imagine a more intimate relationship than between this mother and this afflicted nursing infant; still the mother did not contract small-pox. She was vaccinated!

The State Board of Health again issues its warning: not that the virulent type of the disease may occur, but that it is occurring; not that virulent small-pox threatens Illinois, but that it is prevalent in many parts of the State. Will the disease be prevented in your vicinity, or will you await the invasion of the death-dealing disease before beginning action?

GET VACCINATED AND SPREAD THE GOSPEL OF VACCINATION!



SMALL-POX IN ILLINOIS.
"NEVER VACCINATED."



SMALL-POX IN ILLINOIS.
"NEVER VACCINATED."

SMALL-POX---VARIOLOID

VARIOLA

Small-pox, one of the most highly contagious and dangerous of existing diseases, has been aptly termed the "worst of human maladies." Slightly over a century ago, when the protective power of vaccination was unknown, small-pox caused one-tenth of all the deaths of the human race, and one-third of all deaths under 10 years were due to this disease. So few escaped its attacks that more than one-half of all the living were scarred and disfigured by it. It is estimated that over 60,000,000 of the inhabitants of Europe died from small-pox during the 18th century. The disease attacked persons of every class and order, from the peasant to the king. To quote from "Notenagel's Encyclopedia of Medicine," "the disease spared neither high nor low, spread its terrors in the huts of the poor as well as the dwellings of the rich, even penetrating into the palaces of the princes, and more than once threatened with danger of total extinction the representatives of European dynasties."

A great change has been wrought during the past century, not only in the character of the disease, but in the number of persons attacked by it. This change is due solely to the influence of vaccination, for which the world is indebted to Edward Jenner, who performed the first vaccination on a human being on May 14, 1796. As Jenner, eight weeks later, fearlessly exposed his patient by taking him into small-pox hospitals and otherwise bringing him in contact with small-pox patients without causing him to contract the disease, so may any person who has been successfully vaccinated recently fearlessly expose himself to small-pox without incurring any liability of contracting the disease.

Physicians, nurses and attendants in small-pox hospitals who are properly vaccinated are never attacked by small-pox. Their sole protection is vaccination.

GET VACCINATED!

The contagion of small-pox may be communicated from one person to another by actual contact, or it may be carried through the air of a room or from place to place by means of infected clothing, bedding, merchandise, letters, etc., or by any other article which may have become infected. The contagion exists in the secretions and excretions of the body, and in the exhalations from the lungs and skin.

The pus from the pustules is the most fertile source of contagion, and the dust from the dried pus scales is the usual medium of its dissemination. During the sickness of the patient this dust is distributed throughout the room and becomes attached to the clothing, bedding and various articles of furniture. The disease is, however, highly communicable long before the drying of the pustules. The poison of small-pox is of unusual tenacity, and will remain in the clothing for a considerable period. All clothing and articles of furniture on the infected premises must, therefore, be thoroughly disinfected immediately after the recovery or death of the patient. It is not known just how long the virus of small-pox retains its vitality, but there are well authenticated cases of its renewed activity after it has lain dormant in clothing for years.

In general, one attack of small-pox confers upon a person a life-long immunity from a second, but this is not invariably true. There are well-authenticated cases on record where the disease has appeared twice in the same person. It is stated that Louis XV of France had small-pox when a lad of 14. He died of the disease in his 74th year.

Very young and very old persons are particularly susceptible to small-pox.

The death rate from small-pox is exceedingly high at the present time in certain countries; in others, among almost the same class of people, it is low. Why this is no one can say. As in previous centuries, the introduction of the disease among nations in which vaccination has not been practiced is followed by an enormous loss of life. The appearance of small-pox at the present time among any of the tribes of North American Indians is always followed by a high death rate. It is said that small-pox has done more to exterminate the aborigines of this continent than any other cause.

Personal disfigurement, often hideous in character, and general ruin of the constitution are the common results of small-pox. Blindness, deafness, lung diseases and a tendency to tuberculosis are frequent results. In fact, as stated by Dr. Floyd M. Cran-

dall of New York, in his able paper, "A Century of Vaccination," "the ravages of the disease cannot be estimated by the number it kills."

A recent vaccination showing typical results, or a proper vaccination of years previous which has been proven active by unsuccessful attempts to cause vaccination to again "take," is the one absolute preventive against small-pox. There is no other.

GET VACCINATED!

General cleanliness and the observance of the general laws of health have great influence in modifying the character of the disease, but have little effect in preventing its contraction. Without a doubt general unsanitary surroundings, defective ventilation, overcrowding, impurity of water and food, and personal uncleanness are predisposing causes of such disease as small-pox, cholera, typhoid, diphtheria and the like, but the experience of several centuries has taught that a momentary direct exposure to the virus of small-pox may be sufficient to produce the disease in any unprotected person, be he the inmate of "the hut of the poor, the dwelling of the rich, or the palace of princes."

Small-pox is the easiest of all the contagious diseases to control if it is promptly recognized and properly treated. But when an epidemic is once under way it is exceedingly difficult to suppress. With but few exceptions the local epidemics in Illinois during the last six years have been due to the fact that the disease was not properly diagnosed. There is no other eruptive disease for which small-pox could be mistaken after a number of cases have developed.

Chicken-pox is the eruptive disease most commonly confounded with small-pox. It is stated that the case coming from Chicago, which was the starting point of the epidemic in Montreal in 1885, which caused the death of over 3,000 persons, was called chicken-pox, and was not isolated. During the epidemic in 1893, in Muncie, Ind., for the suppression of which the city paid several thousand dollars, the diagnosis of small-pox was received with incredulity, the disease being also called chicken-pox, and as a result the infected premises were not guarded, and the occupants were allowed to go about as they saw fit. Not until several deaths had occurred did the people realize the error made.

The intelligent physician can usually distinguish between the two diseases; the intelligent layman need have no hesitancy whatever in coming to the conclusion that a case of so-called chicken-

pox, the history of which shows that the patient first complained of headache, pain in the back and legs, and fever, and that two or three days later these symptoms were followed by an eruption, on the appearance of which the patient "felt much better"—is another disease entirely. Chicken-pox very rarely follows this train of symptoms. Small-pox rarely follows any other. Chicken-pox is almost purely a disease of childhood. The disease may affect adults, but it seldom does. Small-pox affects all ages, but the unvaccinated young are affected in a relatively larger proportion than older persons.

GET VACCINATED!



SMALL-POX IS A PREVENTABLE DISEASE.

NO PERSON NEED HAVE SMALL-POX.

VACCINATION IS A PREVENTIVE.

Vaccination—The surest of all measures to prevent small-pox is vaccination. The disease never prevails to any great extent in a well vaccinated community. With small-pox as widely prevalent in the United States and Canada as at present, any city or village having a considerable proportion of its inhabitants unvaccinated, is liable to have an outbreak of the disease, which may grow into an epidemic.

“Delay always breeds danger.”

Vaccination—A person with recent typical vaccination can live in a small-pox hospital, breathe the air loaded with contagion, wait upon those afflicted with this loathsome disease and be perfectly safe. This is to-day the unanimous testimony of health officers the world over.

During the past century the efficacy of vaccination has been repeatedly proven in all countries in which small-pox has appeared.

Vaccination was made obligatory in the German army in 1834, and among all classes of the community in 1874. The effect was at once seen in the mortality from small-pox, which was almost eradicated in the first instance, and greatly reduced in the second. In 1870-71, during the Franco-Prussian war, the two people interpenetrated each other, the German having its civil population vaccinated optionally, but its army completely vaccinated, while the French (population and army alike) were vaccinated perfunctorily. Both were attacked by small-pox. The French army numbered 23,000 deaths by it, while the German army had only 278, and in the same tent, breathing the same air, the French wounded were heavily visited by the disease; while the German wounded having been vaccinated, had not a single case. From 1875 to 1887 one death occurred from small-pox in the German army and this in a soldier who had been re-vaccinated unsuccessfully; while in the French army, from 1875 to 1886, there were 550 deaths from the same cause. In France, in 1896, the disease was 1,176



SMALL-POX IN ILLINOIS.
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times as great as that of Germany for the same year, notwithstanding the contiguity of the two countries. The comparative immunity of the entire German army from small-pox at the present day is due solely to vaccination.

Sweden furnishes some particularly valuable facts concerning vaccination, for excellent records have been kept in that country since 1774. Vaccination was optional in Sweden between 1801 and 1810. In the latter year it became obligatory. In the pre-vaccinal period, from 1774 to 1801, there occurred annually an average of 2,050 deaths in the million from small-pox; during the period of optional vaccination, the mortality had fallen to 686, and from 1810 to 1855 it was 169. From 1816 to 1863 it averaged 155, and from 1884 to 1894, 2.

In Austria and England, as in France, vaccination is not compulsory. In the four great cities of these countries, during the ten years from 1877 to 1886 the small-pox deaths per 100,000 living were as follows: Vienna, 67, London, 25, Paris, 28, against Berlin 1.

Attempt has been made by those who oppose vaccination to minimize the value of these remarkable figures by attributing the diminished death rate and comparative absence of the disease in the German army and in Germany, as in Sweden, to the improved sanitary conditions. This argument is absurd. There was no sudden improvement in sanitary conditions in either Sweden or Germany, and neither country was more sanitary than others with which comparisons have been made. Furthermore, during the Franco-Prussian war the German soldiers suffered and died from other infectious diseases, as dysentery and typhoid fever, not only in like but often in greater numbers than the French troops. If the "improved sanitary conditions" referred to existed in the German army, the spread of these infectious diseases would have been prevented also.

The futility of placing sole dependance on isolation and cleanliness as a means of quelling an epidemic of small-pox was conclusively shown in Gloucester, Eng., the former center of the anti-vaccination propaganda, during the epidemic in that city in 1895 and 1896. Among a population of 42,000 there occurred 1,979 cases of small-pox, 439 of which proved fatal. The strongest efforts were put forth to check the spread of the disease by disinfection and quarantine, but without avail. The epidemic raged until vaccination was enforced, when it rapidly subsided. As elsewhere, those who were loudest in decrying the influence of the vaccination were among the first to avail themselves of its

benefits as soon as it became evident that the plague could not be quelled by any other means. The city of Cleveland, Ohio, had a similar experience in 1902.

In Sheffield, Eng., another city in which a strong anti-vaccination sentiment had arisen, an epidemic of small-pox occurred in 1887 and 1888. The following statistics are authentic: Attack rate per 1,000 in the non-vaccinated, 94; death rate, 51. Attack rate per 1,000 in the once vaccinated, 19; death rate, 1. Attack rate per 1,000 in the re-vaccinated, 3. One in 1,000 of the vaccinated died; 4 in 20 of the unvaccinated.

In January, 1899, in 16 of the 71 municipalities of Puerto Rico there were reported 3,000 cases of small-pox. The governor general, on Jan. 27, ordered that every resident who had not had the disease, be at once vaccinated, and that hereafter all infants must be vaccinated, before reaching the age of six months. On Oct. 20, 1899, not a single case of small-pox could be found in the island by either the military or civil authorities.

The Second United States Volunteer Infantry was sent to Holquin in 1901, in which district there were reported to have been 9,000 cases of small-pox, of which a third were of a virulent type. The soldiers had been twice vaccinated, and though they were called on to do arduous and dangerous work among the infected villages, not a single case of small-pox occurred in the regiment.

In the Philippine Islands a striking fact in support of the value of vaccination has been brought forward in the work in the city of Manila. The systematic vaccination of the city by districts was commenced in June, 1904. The plan was to vaccinate first those sections of the city in which small-pox had been more or less present since time immemorial. One of the worst of them was finished early in 1905, and it is indeed very satisfactory to observe that in this latter district no cases of smallpox have occurred since the vaccination has been finished. One case was reported, but on investigation it was learned that the case had occurred in the person of a child which had not been vaccinated, and which, in all probability, was brought into the district after the vaccinators had completed their work.

In an epidemic of small-pox in Birmingham, Ala., in 1897 and 1898, investigated by the United States Marine Hospital Service, 225 cases were treated, of which 219 were in colored persons and 6 in white. Of the whole number, 106 had never been vaccinated, and 101 unsuccessfully; 2 presented good scars, 5 doubtful ones, and 7 had been recently vaccinated.

At the Philadelphia Municipal Hospital for infectious diseases, 300 cases of small-pox were treated between January 1 and December 1, 1901. Out of this number, not a single patient had been recently successfully vaccinated.

In St. Paul, between May 1, 1899 and May 10, 1901, there were 104 cases of small-pox. Of these, but two had ever been vaccinated, one 15 and one 20 years before.

The vaccinal status of 2,071 cases of small-pox treated in the Isolation Hospital at Chicago, between Jan. 1, 1899, and July 1, 1907, was as follows: 1757 never had been vaccinated. 314 had some sort of a vaccination scar made in early life. The scars were all old, and many of them imperfect, doubtful scars. Not one of these 314 had been re-vaccinated or recently vaccinated. The scars ranged from twenty to fifty years old, and most of them appeared to be scars from too deep a scarification and aggravated by infection without effective vaccination. All patients were carefully examined by experienced physicians for evidence of vaccination, and the record here given, which is furnished by the Chicago Health Department, can be relied upon as correct.

In many well-vaccinated communities in Illinois, in which small-pox has appeared during the past six years, it has been found no difficult task to limit the disease to the first case or cases, and to persons already exposed.

Statistics of the small-pox epidemic in Illinois during 1901 and 1902 furnish indisputable evidence of the beneficial influence of vaccination. During the period from Oct. 1, 1901, to March 1, 1902, there were reported to the State Board of Health over 5,000 cases of this disease among a population of 5,000,000 people. In the city of Chicago, among an estimated population of 2,000,000 people, only 66 cases were found during the period mentioned. Chicago is known to be one of the best vaccinated cities in the United States. The inference is plain. Of these 66 cases 23 occurred in the persons of patients coming from surrounding municipalities and states. Twenty-six cases were traced directly to those imported or to some known case outside of Chicago. The source of contagion of the remaining 17 is unknown, but is supposed to be due to importation. There was no small-pox in the city of Chicago between Aug. 12 and Nov. 12, 1901.

In an isolation hospital in one of the larger cities of Illinois 100 patients were treated for small-pox in the autumn of 1904. Not one of these patients had been successfully vaccinated in recent years.

Facts of the above character could be quoted in several additional pages, but it is believed that no further demonstration of the preventive potency of vaccination is necessary.

A vaccination is probably a protective against small-pox as long as it is a protective against itself. The immunity conferred by vaccination has its limits, as sometimes has that conferred by small-pox itself. Few persons are insusceptible to re-vaccination after the lapse of ten or twelve years following a primary vaccination. Many are susceptible after five years. But in the words of the Berlin Board of Health, which assuredly can speak with authority, "Vaccination in infancy, renewed at the end of childhood, renders an individual practically as safe from death from small-pox as if that disease had been survived in childhood, and almost as safe from attack."

A recent successful vaccination is a positive protection against an attack.

Upon the first appearance of a case of small-pox in a given locality, systematic vaccination or re-vaccination should at once be resorted to—vaccination of all not previously protected, and re-vaccination in all cases where the operation had not been successfully performed within the preceding 12 months. It is not prudent to rely on an old vaccination, no matter how typical the scar may be. The inconvenience of vaccination is trifling compared with an attack of small-pox. If it doesn't "take" one may be assured of safety if exposed, *provided* the operation has been properly performed. If it does "take" it is conclusive evidence that the individual was in a condition to have contracted small-pox if exposed.

Vaccination should in all cases be performed by a legally qualified physician; and too much care cannot be exercised in the selection of virus and the performance of the operation. There are many spurious vaccinations. These are worse than none, because they give a false sense of security, and when they fail to afford the protection expected of them, they not only imperil the lives of the subjects, but bring an unjust odium upon the practice.

"In a serious trust negligence is a crime."

Trivial and simple as the operation appears, it nevertheless is one requiring skill and special knowledge to secure successful results. It is not only a foolish but a dangerous economy to entrust this responsible duty to persons having no knowledge of the phenomena of vaccination,

No harm can result from vaccination with reliable vaccine, properly performed by a qualified physician. Much harm can,

and in all probability will, result if the vaccination be performed by a person ignorant of the technique of the operation, who vaccinates (?) any individual presented without proper examination as to fitness or physical condition, by merely abraiding, scarifying or puncturing the skin, which may or may not be clean, and rubbing in the virus, and fails to give proper directions regarding the after care of the wound.

The writer of this article has vaccinated many individuals, adults, and children. He has vaccinated himself scores of times during the past ten years. He has never observed any serious results from vaccination, and has seen but few "bad arms." He has been wholly unable to find any evidence of serious results from vaccination alone, and does not believe that a permanent injury has ever been caused by vaccination with reliable vaccine, performed by a competent physician. TO DIRT*, not to "impure vaccine," may be attributed the greater number of serious results which have followed vaccination during recent years.

GET VACCINATED!

Too little care is taken by the ordinary person after vaccination to protect the vaccinated area against infection. In fact, vaccination is too often regarded as an operation without danger of infection, and in consequence dirty clothing is allowed to come in contact with the sore, which is often handled with dirty hands and scratched with dirtier finger nails. Under such conditions it is remarkable that serious results do not follow. The wound made to receive the vaccine matter must be kept protected and clean!

An unusual number of cases of tetanus were reported in Camden, N. J., during November, 1901, and several deaths occurred. Unfortunately the majority of persons attacked had recently been vaccinated, and although the disease developed in persons who had NOT been vaccinated, the epidemic was attributed to vaccination. The connection between the process of vaccination and the attack of tetanus, as cause and effect, has not in a single instance been established. On the contrary, a commission of experts appointed by the Camden Board of Health to make a thorough investigation of the epidemic has demonstrated that not one

*As a case in point the following, clipped from the St. Louis Republic will be of interest:
 "Bridgeton, N. J., Dec. 2.—A 9-year-old son of Richard Thompson is lying at the point of death from tetanus, following upon vaccination. The scab was knocked off in a scuffle and much foreign matter allowed to get into the wound. The boy's life is despaired of. It is the first case of the kind here."

It can easily be seen that to no manner whatever was this attack of tetanus associated with the process of vaccination. Had the scab in question covered a wound of any description on the child's arm the result would have been the same.

case of tetanus was caused by vaccination, and that tetanus does not exist in vaccine.

An epidemic of tetanus prevailed in Camden and other parts of New Jersey in November. The atmosphere, soil and dust were impregnated with the fatal germ, hence it was possible that any one who had a wound, a mere scratch, or even an abrasion of the skin from a bruise might be attacked, unless the proper precautions were taken to prevent it.

During the prevalence of tetanus in Camden over 700,000 vaccinations were performed in Philadelphia and its suburbs. Not a single case of tetanus resulted from any of the vaccinations.

VACCINATION AND CONSUMPTION.

Every little while the statement is made that certain diseases, particularly consumption, may be transmitted by vaccination.

Consumption may be transmitted by vaccination, but NOT THROUGH THE VACCINE LYMPH. If consumption is transmitted, it will be through unclean instruments or dirty hands, or through infection caused by improper care of the vaccination.

Consumption cannot be transmitted through vaccine lymph put out by a first class vaccine establishment. There are several reasons why this is so. The following will suffice:

(1) Vaccine lymph is obtained from calves.

(2) Calves rarely have Consumption.

(3) In all first class vaccine establishments, the calves from which the lymph is obtained are tested for Consumption. Every establishment has a reputation to maintain. The proprietors will take every possible precaution to exclude a calf that might be consumptive.

(4) It is easy to determine whether a calf has Consumption.

(5) But even if the germs of Consumption do get into the vaccine lymph they would perish when the lymph is prepared for use.

There is not the slightest evidence that Consumption has ever been transmitted by vaccine lymph. Leading authorities throughout the world doubt whether this disease has ever been transmitted by vaccination.

SUPPRESSION

Small-pox is a preventable disease. It is always practicable to prevent its spread to or from a household. All persons who have come in contact with the patient, or who have visited the infected premises since the appearance of the disease should be immediately vaccinated. These persons also should wash their persons with a solution composed of equal parts Standard Disinfectant No. 3 and water, paying particular attention to the hair and expose the outer clothing worn to air and sunshine.

"Spread The Gospel of Vaccination!"

Small-pox patients should be removed to an isolation hospital. When it is necessary to treat them in their homes, the following precautions should be observed by the persons residing on the premises.

The Nurse—The nurse or attendant should be one who has been recently vaccinated successfully or who has had small-pox.

The Sick Room—The room selected for the sick should be large, easily ventilated, and as far from the living and sleeping rooms of other members of the family as it is practicable to have it. All ornaments, carpets, draperies and articles not absolutely needed in the room should be removed. A free circulation of air from without should be admitted both by night and day—there is no better disinfectant for a room occupied by a patient than pure air. Place the bed as near the middle of the room as possible; but care should be taken to keep the patient out of the draughts. The doors connecting with halls or other rooms should be covered with sheets or cheap cotton cloth kept wet with a solution of carbolic acid (two-and-a-half ounces strong solution of the acid to one gallon of water) or Standard Disinfectant No. 3, mentioned on page 54 of this Circular. Over the door to be used the sheet must not be tacked at the bottom nor along the full length of the lock side of the frame, but about five feet may be left free to be pushed aside; this sheet, however, must be long enough to allow 10 or 12 inches to lie in folds on the floor, and must also be kept wet with the disinfectant.

Precaution in the Sick Room—All discharges from the bowels should be received in vessels containing a quart of Standard Disinfectant No. 1 (either lime or acid), and should be left in the vessel for an hour before being thrown into a privy vault or water closet. The vomited matter and discharges from the lungs and throat should be received in vessels containing the same solution. Have this disinfectant continually on hand ready for use.

A disinfecting solution (carbolic acid $6\frac{1}{2}$ ounces, water 1 gallon) should be always at hand for washing the floor or bed whenever soiled by discharges.

All discharges from the nose and mouth of the patient should be received on rags and immediately burned, and the same precautions should be taken with crusts as they fall off. The cloths should be burned as soon as soiled. If there is no fire in the sick room it is convenient to have a small tub containing Standard Disinfectant No. 1 to receive these cloths.

All knives, forks, spoons, glasses, cups and plates used by the patient must be disinfected at once by being put in a carbolic acid solution and later boiled.

A wooden pail or tub containing Standard Disinfectant No. 3 should be kept in the room, and all blankets, sheets, towels, pillow slips and other articles used about the patient's room should be put into this as soon as they are used and before they are taken from the room. They should be allowed to soak for four hours, then they must be taken out and boiled at once. Use old blankets on the bed and burn them afterwards.

Dust and dirt must be removed by cloths dampened with Standard Disinfectant No. 3, as sweeping and dusting are objectionable. These cloths should be at once thrown into the solution or into the fire.

Books, toys and articles used to amuse the patient when convalescent are best disposed of by burning them in the room. Under no circumstances should toys be borrowed to return, to be used by the well. *Never return a book taken from a public library. It must be burned.*

Miscellaneous—No inmate of the house, during the continuance of the disease, nor after its termination, should leave until permission is given by the health authorities. Letters must not be sent from the patient, and all mail matter from the house should first be subjected to a dry heat of 250 to 260 deg. F. Domestic animals, dogs, cats, etc., should not be allowed to enter the room of the patient, or, better still, should be excluded from the house.

Care of the patient after recovery—No patient should leave the

house until all scaling of the skin has ceased and the skin is perfectly smooth. The red spots where pustules have been will persist for a long time, but there is no danger if the skin is perfectly smooth.

For several days before his discharge the patient should take a bath daily and rub the skin thoroughly with vaseline or similar substances. When the patient is ready for discharge he should thoroughly bathe himself with Standard Disinfectant No. 3, paying particular attention to the hair, and dress himself in new clothing or that which has been disinfected.

Deaths and funerals—In the event of death, the body must be wrapped in a sheet thoroughly soaked in *Standard Disinfectant No. 2*, and then placed in an air-tight coffin, *which must remain in the sick-room until removed for burial*. Public funerals and wakes over such bodies are forbidden. *The coffin must not be opened nor the remains again exposed under any pretext whatsoever*. The body must not be received by any railroad. It must not be received by any other public conveyance except for transportation to the local cemetery—and then only when accompanied by the sworn statement of the undertaker that the body had been prepared as above directed.

DISINFECTION

A house in which there has been a case of small-pox should be thoroughly disinfected immediately after the recovery or death of the patient. The neglect of this important duty may be the cause of the sickness and death of innocent persons who visit the premises later on.

The object of disinfection in the sick room is the destruction of infectious material attached to clothing, carpets, draperies, furniture or surfaces of the room, or deposited as dust upon window ledges, in crevices, etc. If the room has been properly cleansed and ventilated while still occupied by the sick person, and especially if it was stripped of carpets and unnecessary furniture at the onset of his attack, the difficulties of disinfection will be greatly reduced.

The work of disinfection should begin with the beginning of the treatment and should continue during the whole course of the disease. All articles of bed clothing and of body clothing should be disinfected as soon as they are removed from the bed or from the patient.

“Do it now” and “Do it right.”

The liberal use of liquid disinfectants composed of chloride of lime, carbolic acid, or corrosive sublimate is strongly recommended in the sick room, but there should be no attempt to disinfect the room when occupied, by any vapors or gases. This can not be accomplished, and you but waste your time and worry the patient. Fresh air, combined with absolute cleanliness, is the disinfectant most needed in the sick room.

During the entire illness, the privy should be thoroughly disinfected with Standard Disinfectant No. 1, four or five gallons of which should be thrown into the vault every day. Instead of the solution, chloride of lime in powder can be used. All woodwork in the vault should be soaked with the solution or covered with powdered lime. Water closets and sinks should be disinfected daily by pouring a quart or more of the solution of chloride of lime or carbolic acid into the pipes. The pipes should be freely flushed in order to avoid injury.

As unsanitary surroundings and uncleanness will tend to retard the recovery of the patient, every effort should be made to keep the house, cellar, outhouses and yard clean. The cellar should be freed of all rubbish and decaying matter and the walls white-washed. All rubbish and decaying matter should be burned. Quicklime, Standard Disinfectant No. 4, can be well used to white-wash exposed surfaces and to disinfect sinks, drains, decaying matter too wet to be burned, pools of water, etc. Attempt should be made to draw off all pools of water.

In the disinfection of infected houses, the following mode of procedure *will be found easy of application, economical and effective:

(a) Have all windows and doors (except door of egress) tightly closed. Securely paste strips of paper over keyholes, over all cracks, above, beneath and at sides of windows and doors, over stove holes, and all openings in walls, ceiling and floor. If opening be large, paste several thicknesses of paper over opening. Carefully stop up the fireplace, if there be one. There must be no opening through which gas can escape.

(b) All articles in the room that can not be washed should be spread out on chairs or racks. Clothing, bed covers, etc., should be hung on lines stretched across the room. Mattresses should be opened and set on edge. Window shades and curtains spread out at full length. If there is a trunk or chest in the room, open it, but let nothing stay in it. Open the pillows so that the sulphur fumes can reach the feathers. Do not pile articles together.

(c) Use four pounds of powdered sulphur for every 1,000 cubic feet in the room. A room ten feet long, ten feet wide and ten feet high has 1,000 cubic feet. For a large closet use two pounds of sulphur.

(d) Burn the sulphur in an iron pot or deep pan. Let the pot or pan stand in a large vessel containing water, which vessel should be placed on a table, not on the floor. For example, take a common wash tub, lay in it three or four bricks, pour in boiling water to the level of tops of bricks, put the pot or pan containing the required amount of sulphur on the bricks, place the wash tub and contents on a table. The disinfecting "apparatus" is then in working order.

Moisten the sulphur with alcohol and ignite. When the sulphur begins to burn, leave the room, close the door of egress, and carefully paste strips of paper over the keyhole and all open-

*See page 49 for method of disinfection with formaldehyde.

ings above, beneath and at side of door. Keep the room closed for ten hours at least, twenty-four if possible.

Sulphur candles can be used instead of crude sulphur, but care must be taken to use sufficient candles. The average candle on the market contains one pound of sulphur. Four of these will be required in the disinfection of a small room, 10x10x10. Do not use a less number, no matter what directions may accompany the candle. The water jacketed candle is preferable. Partly fill tin around candle with water and place candle in a pan on the table, not on the floor. Let at least one-half pint of water be vaporized with each candle. In the absence of moisture, the fumes of sulphur have no disinfecting power.

(e) After the apartments are opened, take out all articles and place them in the sunshine. Carpets should be well beaten and exposed to the sun.

(f) All surfaces in the room should then be thoroughly washed with Standard Disinfectant No. 3. Wall and ceiling, if plastered, should subsequently be washed with lime. Wash well all out of the way places, window ledges, mouldings, etc. Floors particularly should receive careful treatment and the solution should wet the dust and dirt in the cracks. If the walls are papered, soak the paper with the solution and have it removed.

(g) After washing, ventilate the rooms if possible for several hours, then scrub all woodwork with soap and hot water.

(h) It is safer to burn mattresses and pillows.

(i) It is likewise safer to burn all books, toys and articles of little value which have been handled by the patient. Burn what you cannot boil. Books which have not been handled by the patient can be saved. Lay them on edge on a table with leaves open, in room while sulphur is burning.

Sulphur has an injurious effect upon textile fabrics. Lace curtains, linen or cotton goods should not be exposed to its fumes, but should be boiled. If such goods are in the room while disinfection is going on, they should be placed in water as soon as the room is opened. Expensive draperies and rugs may be effectively disinfected by beating and exposing them to sunshine and wind for several days.



SMALL-POX IN ILLINOIS.
"NEVER VACCINATED."

RULES AND REGULATIONS FOR PHYSICIANS AND HEALTH AUTHORITIES

DUTIES OF PHYSICIANS

The failure of a physician to readily recognize small-pox or an error in its diagnosis may result in an outbreak entailing much sickness and loss of life, much physical and mental suffering, as well as business stagnation and consequent financial loss.

"In a serious trust negligence is a crime."

In a typical, well marked case of small-pox there is little excuse for error in diagnosis, even by physicians who have never before seen the disease, but in a case of modified type too prevalent nowadays, mistakes are pardonable. Small-pox should be confounded with but two diseases, viz.: varicella and postural syphiloderm, although, as stated by Schamberg, variola during the initial stage may be confounded with enteric fever, typhus, scarlatina, influenza and meningitis. It is frequently difficult to exclude the latter two until the appearance of the eruption.

Even the modified type of the disease presents such thoroughly characteristic features that there is rarely justification for confounding it with eczema, acne, rubeola, herpes, pemphigus, impetigo or the medicinal rashes.

For a description of the modified type of small-pox and the differentiation between it and syphilis or varicella, physicians are particularly referred to the following: "Allbutt's System of Medicine, 97," "Remarks on the Present Mild Type of Small-pox," by William Welch, M. D. (Philadelphia Medical Journal, Nov. 18, 1899), and "Touching the Symptoms and Diagnosis of the Epidemic of Modified Small-pox," by James Nevins Hyde, A. M., M. D. These articles by Welch and Hyde, and an extract from "Allbutt's System of Medicine" are published in pamphlet form by the Illinois State Board of Health.

The physician should bear in mind that varicella rarely attacks adults, that in varicella there is exceedingly rarely, a stage of pustulation, and that as a rule the eruption of varicella is at an

end within three or four days after its appearance. A patient who presents a history of a fever, pain in the head and back, vertigo, vomiting and general malaise subsiding on the third day on the appearance of an eruption on the face and hands, which eruption is first papular, then vesicular, and later pustular, is almost certainly not affected with varicella.

In an analysis of the initial symptoms in 100 cases recently admitted to the Municipal hospital, Philadelphia, reported by Dr. Jay F. Schamberg before the Philadelphia Medical Society, the various manifestations were present in the following percentages: Headache was present in 86 per cent; chills were present in 87 per cent; backache was present in 70 per cent; vertigo was present in 57 per cent; vomiting was present in 55 per cent; nausea without vomiting was present in 10 per cent more of cases. In but two cases was there complete absence of an initial stage.

Some cases begin with severe backache and weakness of the lower extremities. Backache, however, is an inconstant symptom and is perhaps absent in 30 or 40 per cent of cases. It is said to be more frequently present in severe than in mild cases, and in hemorrhagic small-pox it is apt to be violent in intensity. Very many patients even in mild attacks, complain of vertigo; this is particularly manifest upon the patient's assuming the vertical position. Some patients, during the last days of the period of incubation, develop a more or less sudden loathing for food, and this complete anorexia may continue for some days. The initial fever may reach 104 or 105 even in cases which prove to be mild. High temperature is apt to be accompanied by delirium and in children by convulsions.

While the characteristic umbilication often appearing in small-pox is a pathognomonic sign of the disease, its absence does not indicate that the eruption is other than that of small-pox. Umbilication is frequently absent in the vesicles of variola, hence it is not a diagnostic sign. The type of umbilication seen in small-pox does not appear in varicella or syphilis.

The extent of the eruption does not indicate the character of the disease. In a severe case of varicella the body may be covered with angry vesicles, some of which may have become pustules, while in a case of undoubted small-pox there may be but two or three lesions on the skin. As stated by Hyde, "the difference between these wholly distinct affections are not those of severity." In the differential diagnosis attention must be given to the history and to the character of the eruption.

A physician scarcely needs assurance that there is no such disease as "Cuban itch" in the United States, neither has there been imported from Puerto Rico a form of varicella peculiar to that country.

All cases of small-pox, or all cases concerning which a doubt exists, should be immediately reported to the local health authorities—the health officer in the cities and villages, the supervisor in townships, or the chairman of the board of county commissioners when cases occur in a county not under township organization outside of incorporated cities and villages. If in doubt of the true character of the eruption the physician should advise the isolation of the patient. In such cases it is an excellent plan to temporarily placard the house with a sign reading "Contagious Disease Here." In case prompt action is not taken by the local authorities the physician should advise the Secretary of the State Board of Health by telegraph or telephone, the latter if possible. Isolate when in doubt. An error in the interest of the public safety is always a justifiable error.

"To fear the worst often cures the worst!"

Physicians should be careful not to transmit the disease. The virus of small-pox is easily carried on the clothing or on the person, especially in the hair and beard. When visiting a patient either a special outer garment must be worn or the ordinary clothing should be thoroughly brushed with a germicidal solution. The hands, face and hair should also be thoroughly disinfected.

Cases of small-pox under treatment should not be discharged until the process of desquamation is complete. This is variable, depending entirely on the case. A safe rule is to await the disappearance of the peculiar red specks at the bottom of the pits or scars. So long as this condition is present, desquamation is going on.

On the termination of the case in recovery, the patient should be given an antiseptic bath—1-1000 bichloride of mercury—followed by a second bath of water, and then provided with sterile clothing.

It is imperative that the infected premises be disinfected before the patient is released from quarantine. While the performance of this duty devolves upon the local authorities, the physician can see that disinfection is performed.

There is no excuse for the spread of small-pox. It is a preventable disease, and one easily subject to control. Vaccination properly performed is a safe and positive protection against small-pox. The disease will not and can not spread in a well vaccinated

ed community. The prompt vaccination of every person known to be exposed to small-pox is imperative almost without exception. Vaccination, if successfully performed within three days after exposure to infection of small-pox will prevent the appearance of the disease, and after the attack will be averted or modified if performed as late as the fifth day. This is especially the case when re-vaccination is performed, the incubation of which is shorter than the primary vaccination.

William Welch, of Philadelphia, than whom there is no greater authority in the world on small-pox and vaccination, says: "I am firmly of the opinion that if all persons were properly vaccinated in infancy and again at the age of puberty, Jenner's prediction as to the power of this agent to extirpate small-pox from the globe would soon be realized."

In order to secure pure vaccine the supply should be obtained from an accredited source, and as bovine virus only is now used the dangers which heretofore existed from arm to arm vaccination are eliminated. Glycerinized lymph only should be used. Properly prepared glycerinized vaccine is pure and free from staphylococci, streptococci and other pathogenic organisms which are often found on dried points. Glycerinized vaccine affords absolute protection against small-pox; dried points are uncertain in this regard. The vaccine on dry points often becomes inactive while the pyogenic bacteria, which are usually found remain active. Inoculation with this matter might and often does induce a staphylococcic or streptococcic infection which although resembling an ordinary vaccination is absolutely no protection against small-pox. Cases of small-pox often occur in patients thus "vaccinated."

"My own observations lead me to believe that vaccination is more certainly protective against small-pox than the figures of most of the records we get will warrant. The fault of most of these records is that they are based upon the statements of the patient that he has been vaccinated. An examination of the arm will disprove this statement in a large number of instances.

"Ask a hundred patients if they are vaccinated and nearly every one will say yes. Examine their arms and tell them there is no mark and they will reply that they were vaccinated, but it did not take. Of course this is no vaccination at all.

"People say that they have been vaccinated whether the operation is successful or not. And again, any scar at the site of an attempted vaccination has been recorded as a vaccination. This is another source of error which lessens the value of available records.

"A close examination of all arms by experienced physicians will eliminate these sources of error which in the past have been recorded as truth to the

great detriment of accurate information upon the subject of vaccination. Vaccination repeated till the susceptibility to vaccine is exhausted is an absolute protection from small-pox. This is the protection we give the employes in the Chicago health department, while they are handling and nursing the sick and burying the dead from small-pox, and in no instance has any one of our employes contracted small-pox."—(Chief Medical Inspector, Chicago Health Department, to Secretary State Board of Health.)

In the performance of vaccination the greatest care should be taken by the physician not only to obtain typical results, but also to avoid any untoward results. Trivial and simple as the operation appears, it nevertheless is one requiring skill and special knowledge to secure successful results and avoid unpleasant sequelae. The arm must be surgically clean (but alcohol should not be used as it inhibits the action of the vaccine), the instrument used in the scarification must be sterilized, the operator's hands clean, the finger nails not "in mourning," and the vaccinated area after drying must be covered with sterilized gauze or soft linen, which should be changed every day or two until the scab falls off. The writer uses for scarifying a vaccine point which has been boiled and finds it far superior to a needle or scalpel. A fresh point can be used for each patient.

THE EFFICACY OF VACCINATION.

Sixty-nine cases of smallpox were sent to the Isolation Hospital from January 1st to July 1st, 1907. Of this number sixty-one never had been vaccinated; eight had old, imperfect and doubtful scars made in childhood. Not one of these eight had been revaccinated or recently vaccinated. The scars were from twenty to forty years old, and appeared to be scars from too deep scarification and aggravated by infection, without effective vaccination. Had these persons been vaccinated and revaccinated, not one of them would have contracted smallpox, and the city would have been spared the expense of feeding and caring for them.—*Bulletin of the Department of Health, City of Chicago.*

PUBLIC HEALTH LAWS OF ILLINOIS

EXTRACTS FROM THE REVISED STATUTES

POWERS AND AUTHORITY OF THE STATE BOARD OF HEALTH

[Chapter 126 a]

(Extracts.)

SECTION 2. The State Board of Health shall have the general supervision of the interests of the health and lives of the people of the state. They shall have supreme authority in matters of quarantine, and may declare and enforce quarantine when none exists, and may modify or relax quarantine when it has been established. The Board shall have authority to make such rules and regulations and such sanitary investigations as they may from time to time deem necessary for the preservation and improvement of the public health, and they are empowered to regulate the transportation of the remains of deceased persons. It shall be the duty of all local boards of health, health authorities and officers, police officers, sheriffs, constables and all other officers and employes of the state or any county, village, city or township thereof, to enforce the rules and regulations that may be adopted by the State Board of Health.

It shall be the duty of the State Board of Health to investigate into the cause of dangerously contagious or infectious diseases, especially when existing in epidemic form, and to take measures to restrict and suppress the same, and whenever any dangerously contagious or infectious disease shall become, or threaten to become epidemic, in any village or city, and the local board of health or local authorities shall neglect or refuse to enforce efficient measures for its restriction or suppression or to act with sufficient promptness or efficiency, or whenever the local board of health or local authorities shall neglect or refuse to promptly enforce efficient measures for the restriction or suppression of dangerously contagious or infectious diseases, the State Board of Health or their Secretary, as their executive officer, when the Board is not in session, may enforce such measures as the said Board or their executive officer may deem necessary to protect the public health, and all necessary expenses so incurred shall be paid by the city or village for which services are rendered.

SECTION 7. Any person who violates or refuses to obey any rule or regulation of the State Board of Health shall be liable to a fine not to exceed \$200.00 for each offense or imprisonment in the county jail not exceeding six months, or both, in the discretion of the court. All prosecutions and

proceedings instituted by the State Board of Health for violation of their rules and regulations shall be instituted by the Board or by their executive officer, and it shall be the duty of the State's Attorney in each county to prosecute all persons in his county violating or refusing to obey the rules and regulations of the State Board of Health. All fines or judgments collected or received shall be paid over to the State Treasurer and credited to the fund created for the support of the State Board of Health.

POWERS OF CITY COUNCILS IN CITIES AND PRESIDENTS AND BOARDS OF TRUSTEES IN VILLAGES INCORPORATED UNDER THE GENERAL LAW

[Chapter 24, Section 62.]

(Extracts.)

Seventy-fifth—To declare what shall be a nuisance, and to abate the same; and to impose fines upon parties who may create, continue or suffer nuisances to exist.

Seventy-sixth—To appoint a board of health, and prescribe its powers and duties.

Seventy-eighth—To do all acts, make all regulations which may be necessary or expedient for the promotion of health or the suppression of disease.

Eighty-first—To direct the location and regulate the management and construction of packing houses, renderies, tallow chandleries, bone factories, soap factories and tanneries, within the limits of the city or village, and within the distance of one mile without the city or village limits.

Eighty-third—To prohibit any offensive or unwholesome business or establishment within or within one mile of the limits of the corporation.

Eighty-fourth—To compel the owner of any grocery, cellar, soap or tallow chandlery, tannery, stable, pig sty, privy, sewer or other unwholesome or nauseous house or place, to cleanse, abate or remove the same, and to regulate the location thereof.

Ninety-sixth—To pass all ordinances, rules, and make all regulations, proper or necessary, to carry into effect the powers granted to cities or villages, with such fines or penalties as the city council or board of trustees shall deem proper: *Provided*, no fine or penalty shall exceed \$200, and no imprisonment shall exceed six months for one offense.

Territorial Jurisdiction—The city council and board of trustees shall also have jurisdiction in and over all places within one-half mile of the city or village limits, for the purpose of enforcing health and quarantine ordinances and regulations thereof.—[*Revised Statutes, Chapter 24. Sec. 44.*]

POWERS OF COUNTY AND TOWNSHIP BOARDS OF HEALTH

[Act approved May 10, in force July 1, 1901. Amended by act in force July 1, 1903.]

(Extracts.)

SECTION 1. The board of county commissioners in *counties not under township organization*, and the supervisor, assessor and town clerk of every town in *counties under township organization*, shall constitute a board of health, and on the breaking out of any contagious or infectious disease in their

county or town, or in the immediate vicinity thereof, it shall be their duty to make and enforce such rules and regulations tending to check the spread of the disease within the limits of such county or town as may be necessary; and for this purpose they shall have power to quarantine any house or houses, or place where any infected person may be, and cause notices of warning to be put thereon, and to require the disinfection of the house or place: *Provided*, that nothing in this act shall apply to any territory lying within the corporate limits of any incorporated city or village: *Provided, further*, that in case the board of health of any county not under township organization, or of any township in counties under township organization shall fail, refuse or neglect to promptly take the necessary measures to preserve the public health, or in case any such board of health shall refuse or neglect to carry out the rules and regulations of the State Board of Health, that thereupon the State Board of Health may discharge such duties and collect from the county or township, as the case may be, the reasonable costs, charges and expenses incurred thereby.

SECTION 2. The said boards of health shall have the following powers:

First—To do all acts, make all regulations which may be necessary or expedient for the promotion of health or the suppression of disease.

Second—To appoint physicians as health officers and prescribe their duties.

Third—To incur the expenses necessary for the performance of the duties and powers enjoined upon the board.

Fourth—To provide gratuitous vaccination and disinfection.

Fifth—To require reports of dangerously communicable diseases.

SECTION 3. Any person who shall violate, or refuse to obey, any rule or regulation of the said board of health, shall be liable to a fine not exceeding \$200 for each offense, or imprisonment in the county jail not to exceed six months, or both, in the discretion of the court.

All fines collected under the provisions of this act shall be paid into the county treasury of the county in which the suit is brought, to be used for county purposes, and it shall be the duty of the State's attorney in the respective counties to prosecute all persons violating, or refusing to obey, the rules of said local boards of health.



SMALL-POX IN ILLINOIS.
"NEVER VACCINATED."

DUTIES OF HEALTH AUTHORITIES

Whatever measures are adopted should be made thorough.

"Measures, good or bad, half done are worse than useless, as they give a fancied security.

"Small-pox cannot be suppressed without the expenditure of money.

"The more promptly you act the less it will cost.

"When in doubt, act on the safe side.

"Finally the following motto is offered for your banner in small-pox work.

"Isolate, Vaccinate, Disinfect."

(Public Health Reports, U. S. Public Health Service.)

Whenever a case of small-pox is reported by the householder, the neighbors or the attending physician, the health officer, if there be one, or a physician appointed by the city, village, township or county authorities, should visit the premises and secure prompt compliance with the precautions herein enjoined.

Cases of suspected small-pox, all cases of eruptive diseases, the true nature of which are in doubt, and all cases of "Cuban itch" and "Puerto Rican chicken-pox" should be quarantined as cases of small-pox until it is known that the disease is not small-pox. In such cases it is an excellent plan to temporarily placard the house with a sign reading "Contagious Disease Here."

"When in doubt, act on the safe side."

RULES OF THE STATE BOARD OF HEALTH

Under the authority conferred upon the State Board of Health in section 2 of "An act to create and establish a State Board of Health in the State of Illinois," (chapter 126a, Revised Statutes), by which the board has conferred upon it the general supervision of the interests of the health and life of the citizens of the state, is given supreme authority in all matters pertaining to quarantine, and is empowered to make such rules and regulations as it may deem necessary for the preservation and improvement of the public health, the Board hereby adopts and promulgates the fol-

lowing rules and regulations for the guidance of local health authorities in cities, villages, townships and counties not under township organization:

1. *Reports of Diseases*--All cases of small-pox and all cases of eruptive disease concerning the diagnosis of which doubt exists, shall be reported by the attending physicians to the local health authorities and by them at once to the Secretary of the State Board of Health at Springfield.

Local authorities should have an examination made of all "suspicious cases" reported to them. If the physicians are unable to agree on the nature of the disease, the local authorities should at once advise the Secretary of the State Board of Health by telephone or telegraph.

2. *Isolation and Quarantine*—Whenever a case of small-pox occurs in any community in the state, the patient shall at once be isolated and the infected premises shall be rigidly quarantined. All persons residing on said premises shall be confined thereto until after the recovery or death of the patient and until the house and contents have been thoroughly disinfected, except as hereinafter specified. All persons on the infected premises shall be notified of the existence of the quarantine.

3. *Placarding*—A yellow flag or placard bearing the words "small-pox here" shall be prominently displayed on any house or place in which small-pox exists, and this flag or placard shall not be removed until after the death or recovery of the patient, and then only when the house and its contents have been thoroughly disinfected.

4. *Removal*—If practicable, the patient shall be removed to an isolation hospital,* after which the house from which he has been removed shall be thoroughly disinfected and the quarantine shall be raised within 12 days, provided the remaining inmates shall have been recently vaccinated. If such inmates do not submit to vaccination, the quarantine shall be maintained for 20 days.

5. *Persons on Infected Premises*—Any person, an inmate of a house in which there is small-pox (the patient excepted) may be permitted to leave the premises within 12 days after the vaccination, provided his clothing and person have been thoroughly disinfected, and provided he shows no signs of illness. Said person shall not be permitted to return to the house until it has been disinfected.

*Regarding the location of small-pox hospitals, see *Frazer vs. City of Chicago*, 186 Ill., 480, and 57 N. E. R., 1055.

†Has reference to persons who do not continue to live in infected house.

6. *Persons Exposed to Small-pox*—All persons known to have been directly exposed to small-pox and who therefore are capable of contracting and transmitting the disease shall be quarantined for at least 12 days, if recently vaccinated, or for 20 days if not recently vaccinated, provided that persons not in the affected house,† who have been vaccinated the day of the exposure or within one or two days thereafter, shall be kept under observation by the local authorities instead of being quarantined.

Persons who have been exposed to small-pox should be kept under the observation of a physician, who should inspect them at least once daily during the period of incubation. These persons are not infectious until after the initial fever appears, and then slightly so in the first 48 hours; that is to say, before the eruption makes its appearance on the mucous membrane and skin.

Suspects should be kept under observation. Under certain circumstances this may best be done by segregating them in observation camps or hospitals. Under certain circumstances it may be done by surveillance at their residences.

7. *Duties of Physicians*—The physician attending a case of small-pox may be permitted to visit the infected premises whenever necessary, but must take all necessary precautions to avoid carrying the disease on his clothing or person.

8. *Recovery of Patient*—The patient shall not be considered “entirely recovered” until pronounced so by a legally qualified physician.

9. *Disinfection*—The infected house, with all articles of furniture and clothing therein shall be thoroughly disinfected before the quarantine shall be raised.

10. *Schools and Public Assemblages*—Whenever small-pox exists in a community in this state, no child shall be admitted to any public or private school or other public assemblage within or near to said community, without presenting evidence of proper and successful vaccination.

It is not considered necessary to close the schools during the prevalence of small-pox in a community, unless it prevails in an epidemic form, but the local health authorities should notify the principals of all public, parochial and private schools in the neighborhood of the existence of the disease, and if any children, affected with the disease, or any from infected premises, have attended school since its appearance, such school or schools should be promptly closed until disinfected.

It is imperative that similar notice be sent also to the superintendents of all Sunday schools, or to the pastors of churches, for

- there is no question but that the liability of the dissemination of contagious diseases is greater in Sunday schools which are used but once a week, than in public schools which are cleansed and ventilated daily. As a further precautionary measure the local health authorities should see that rooms used for Sunday school purposes be kept in a sanitary condition and freely ventilated at intervals during the week.

During the presence of any dangerously communicable disease, the local health authorities have power to prohibit public gatherings, if such course seems advisable.

11. *Deaths and Funerals*—In the event of death, the body must be wrapped in a sheet thoroughly soaked in *Standard Disinfectant No. 2*, and then place in an airtight coffin, *which must remain in the sick room until removed for burial*. Public funerals and wakes over such bodies are forbidden. *The coffin must not be opened nor the remains again exposed under any pretext whatsoever*. The body must not be received by any railroad. It must not be received by any other public conveyance except for transportation to the local cemetery, and then only when accompanied by the sworn statement of the undertaker that the body has been prepared as above directed.

When death occurs from small-pox the body must be buried as soon as possible, and in all cases within 24 hours from the time of death. The undertaker or others who are obliged to go into the house where the body is must be required to use all necessary precautions to prevent carrying the disease, such as a change of clothing (which should afterwards be disinfected), disinfecting the hands and beard, etc. The necessary pallbearers must also take proper precautions. The funeral and burial must be strictly private. Members of the family and others quarantined with them should take leave of the body at the house. The interior of the hearse or other vehicle used to transport the body should be thoroughly washed, after the burial, with a disinfectant solution. All persons who are obliged to expose themselves to small-pox should be vaccinated before or immediately after such exposure.

Quarantine, Vaccinate, Disinfect.

MISCELLANEOUS

POWERS OF LOCAL AUTHORITIES

Local authorities everywhere in the state have ample statutory powers, and it is their chief function and most imperative duty to guard against the introduction of contagious and infectious diseases, by the exercise of proper and vigilant medical inspection and control of all persons and things arriving within the jurisdiction of the boards from infected places, or which, for any cause, are liable to communicate contagion. It is their duty to require the isolation of all persons and things infected with or exposed to, infectious or contagious diseases, and to provide suitable places for their reception, to prohibit and prevent all intercourse and communication with or use of infected premises, places and things, and to require, and, if necessary to provide for the thorough purification and cleansing of the same, before general intercourse therein, or use thereof, shall be allowed.

"In a serious trust negligence is a crime."

The authorities may, in general, take any measures of precautions, however stringent, which they may deem necessary or prudent in the interest of the health of the inhabitants. "The health of the people is the supreme law."

There is no more liberal law or charter in existence than is given to the councils of cities and the trustees of villages in section 62, chapter 24, of the revised statutes, for the almost absolute and unrestrained control of the agencies affecting the public health. Concerning the force and effect of such, the Supreme Court of Illinois, in the case of *Mason, et al. vs. The City of Shawneetown*, 77 Ill., 533 says: "When an incorporated town or city has been invested with power to pass an ordinance, by the legislature, for the government or welfare of the municipality, an ordinance enacted by the legislative branch of the corporation in pursuance of an act creating the corporation, has the same force and effect of a law passed by the legislature, and cannot be regarded otherwise than as a law of and within the corporation. An ordinance is the law of the inhabitants of the municipality."

"In nearly all health and quarantine laws some are put to in-

convenience and annoyance and many, to a certain extent, are deprived of their liberty and freedom of action. But, if the public necessity requires it, the convenience or even liberty of the individual citizen must give away for the welfare of the greater number. * * * The good of the many must be preferred to the convenience or supposed welfare of the few.”—Decision Appellate Court of Illinois, Second district, Lawbaugh vs. Board of Education, 66 Ill. App., 159.

“When the small-pox or any other contagious disease exists in any town or city the law demands the utmost vigilance to prevent its spread.

“To accomplish this object, persons may be seized and restrained of their liberty or ordered to leave the state; private houses may be converted into hospitals and made subject to hospital regulations; buildings may be broken open and infected articles seized and destroyed, and many other things done which, under ordinary circumstances, would be considered a gross outrage upon the rights of persons and property. This is allowed upon the same principle that houses are allowed to be torn down to stop a conflagration. *Salus populi suprema lex*—the safety of the people is the supreme law—is the governing principle in such cases.

“Where the public health and human life are concerned the law requires the highest degree of care. It will not allow of experiments to see if a less degree of care will not answer. The keeper of a furious dog or a mad bull is not allowed to let them run at large to see whether they will bite or gore the neighbor's children. Nor is the dealer in nitro-glycerine allowed, in the presence of his customers, to see how hard a kick a can of it will bear without exploding. Nor is the dealer in gunpowder allowed to see how near his magazine may be located to a blacksmith's forge without being blown up. Nor is one using a steam engine allowed to see how much steam he can possibly put on without bursting the boiler. No more are those in charge of small-pox patients allowed to experiment to see how little cleansing will answer; how much paper spit upon and bedaubed with small-pox virus it will do to leave upon the walls of the rooms where the patients have been confined. The law will not tolerate such experiments. It demands the exercise of all possible care. In all cases of doubt the safest course should be pursued, remembering that it is infinitely better to do too much than to run the risk of doing too little.”—Decision Supreme Court of Maine, Seavey vs. Preble, 64 Me., 120.

The right of a municipality, through its proper officers, to place in confinement and to subject to regular medical treatment those who are suffering from a dangerously communicable disease, on account of the danger to which the public would be exposed if they were permitted to go at large, is so free from doubt that it has rarely been questioned.

QUARANTINE

In most instances small-pox patients will be treated in their homes, but whenever practicable the patient should be removed to an isolation hospital. While such are found in larger cities only, any isolated building, if suitable for occupation, may be made to answer the purpose for a few cases. Such a building may be rented, or one may be erected in short order. In time of great emergency an empty building, suitably located, may, if necessary, be seized and used as a hospital, damages to be settled with the owner later. In warm weather tents will admirably answer the purpose. Such hospitals are specially needful where a stranger is found with small-pox and has no place to go. In the state of Illinois there is no question as to right of a municipality to locate, conduct and maintain a small-pox hospital. County and municipal authorities are referred to the decision of the Supreme Court of Illinois in the case of *Frazer vs. City of Chicago*, 186 Ill., 480.

When small-pox is discovered in a house, inquiry should be made of the whereabouts of any absent members of the household; and if they have been exposed to the disease they should be promptly vaccinated or returned to the house and quarantined. If any such person has left the community, and his whereabouts can be learned, the authorities of the community to which he has gone should be notified. A list of all other persons who have been exposed to the patients, as far as possible, should be written down. These persons should be found and vaccinated or quarantined in their own homes. [See rule 6 of State Board of Health.]

The expense of quarantine must be borne by the municipality, but for the board, nursing, medical assistance, and supplies furnished to small-pox patients the county is liable if the proper county officer has been advised of the needs of the patients.

"When a person within the designation of section 24, chapter 107, Revised Statutes 1901, falls sick, whether with small-pox or some other disease, the county in which he shall have fallen sick is liable for the necessary expense of his nursing, provisions and medical attendance.

* * * * *

"The expense of enforcing health laws and quarantine regulations always falls upon the city, town or county enforcing such regulations, and cannot be charged by a city enforcing such regulations, against a county in which said city may be located."

"The obligation of a county to care for a person falling sick under the provisions of the statute above quoted, is absolute where such supplies are furnished by an individual or by a city, and has no relation whatever to the expense of enforcing quarantine regulations." *County of Perry vs. City of DuQuoin*, 99 Ill., 479.

"Where one is taken from his home and confined in a small-pox hospital, possibly against his will, and expenses are incurred for his board and nursing while therein, whether he comes within the provisions of the pauper act or not, such person is not liable for his care, supplies and medical attention while so confined, but such expenses will fall upon the city, town or county enforcing the quarantine."

"This, however, is not true where one, not temporarily a pauper, is simply quarantined in his home, not sequestered from his family, but allowed to use his own means of support, being simply regulated by the rules adopted by the board of health for the protection of the community. And in such case he is liable for and must pay the expenses of his care, medical attention and supplies, but the expense of guards, supervising his premises and enforcing quarantine regulations thereon, are chargeable against the city, town or county under whose authority the quarantine is being enforced."—*Opinion Attorney General of Illinois.*

VACCINATION

When small-pox has appeared vaccination is still one of the best means to prevent its spread. Of first importance is the vaccination of persons in the house with the patient. If this is done promptly the disease may be limited to the first case. If a person is vaccinated within three, or possibly four days after exposure to small-pox it may still protect him against an attack of the disease. After vaccinating all persons in the house with the patient, all others who were exposed to him should be promptly hunted up and vaccinated.

Whenever small-pox exists in a community, or its appearance is apprehended, the mayor, president of the village board, or the city, village, township or county board of health, as the case may be, should issue a proclamation setting forth the facts, point out the danger imminent, and calling upon the people to be vaccinated.

ed at once. Vaccination should be performed free of charge by the municipality, in the case of those who are unable to pay for the service. Proper vaccination is the only safe and positive protection against small-pox.

Spread the Gospel of Vaccination.

In addition to warning those over whom they exercise jurisdiction of the danger existing, and pointing out the measures whereby the occurrence of the disease may be obviated, every effort should be made by municipal, township and county authorities, to induce owners or managers of factories and business establishments and all employers of labor to demand of those in their service, as a condition of further employment, an evidence of proper and successful vaccination. Especially should efforts be made to procure the vaccination of children who are particularly susceptible to the contagion of small-pox.



Care should be used in the selection of vaccine virus. Dried vaccine points are unreliable. The State Board of Health advises the use of glycerinized lymph.

Vaccination by the mouth—During the past few years the State Board of Health has been advised on several occasions by local health officials that children had presented to school authorities certificates attesting to the vaccination of the child by the administration of vaccine by the mouth. These were signed by physicians of the Homeopathic school. In every instance the local officials were advised that such certificates should not be accepted.

It is not believed that the administration of vaccine or any drug by the mouth as a preventive against small-pox is in accordance with the teaching of the Homeopathic school of medicine. Even if such administration were effective, and proof of this is wanting, the action of the matter ingested could be but temporary. If the patient forgot to take the usual dose of his "medicine" or if he discontinued its use altogether, whatever immunity he may have



SMALL-POX IN ILLINOIS.
"NEVER VACCINATED."

enjoyed would come to an end. Then again there is no proof that the "vaccination" has taken.

"Nothing is more terrible than active ignorance."

This practice was condemned in 1902 by the member of the Illinois State Board of Health representing the Homeopathic school of medicine, who was also a member of the faculty of the Hahnemann Medical College of Chicago. Furthermore, the Homeopathic members of the State Board of Health during the past 25 years have been in favor of vaccination as ordinarily practiced.

Doctor Edward M. Hale, * Emeritus Professor of the Theory and Practice of Medicine in the Chicago College of Homeopathy, one of the leading physicians of the homeopathic school, says in the latest edition of his work on practice: "If vaccination were universally performed with pure vaccine matter and repeated as often as every five years, small-pox would disappear forever." The Medical Century of Chicago, an exponent of the principles of Homeopathy as taught by Hahnemann, speaks as follows in a recent editorial on vaccination:

"If vaccination protects, and we are inclined to believe that it does protect in a truly Homeopathic manner, it should have the chance to be practiced and nothing but the purest product should be used and the operation performed as carefully as a laparotomy or a trephining operation."

DISINFECTION

The disinfection of infected premises is as important as the maintenance of a quarantine during the prevalence of the disease. The germs of small-pox will live for years. It is imperative therefore that the infected premises, with its contents, be thoroughly disinfected after death or recovery of the patient, in order to avoid spreading the disease.

A disinfection in the manner indicated on page 49, of this circular, will be thoroughly effective. The work, however, must be properly done as directed, else the germs of the disease will remain in the house, a menace to the health and lives of those who enter. The health officer should never forget the fearful consequence which may follow a neglect in any particular of this important duty.

"Whatever is Worth Doing is Worth Doing Well."

Disinfection should be performed by the city, village, township or county authorities—the latter in counties not under township organization only—under the immediate direction of or by a qual-

*Deceased.

ified health officer, physician or embalmer licensed by the State Board of Health.

Disinfection by the burning of sulphur has been successfully practiced for many years. As stated by Surgeon General Sternberg, United States Army, "the experience of sanitarians is in favor of its use in yellow fever, small-pox, scarlet fever, diphtheria and other diseases in which there is reason to believe that the infectious material does not contain spores." This method of disinfection has also been endorsed recently by the United States Marine Hospital Service, after numerous experiments, during which the efficacy of sulphur disinfection, in the presence of moisture, was conclusively proven. The results obtained by the Illinois State Board of Health, in the several experiments made, have been directly in line with those of other investigators. The burning of sulphur in the presence of moisture has been found an effectual method of gaseous disinfection, and upon which entire dependence can be placed at all times in disinfection after disease due to micro-organism not containing spores.

There is, however, one serious objection to the use of sulphur, and this must be fully understood. The fumes of sulphur have a destructive action on fabrics of wool, silk, cotton and linen, on tapestries and draperies, and exercise an injurious influence on brass, copper, steel and gilt work. Colored fabrics are frequently changed in appearance and the strength impaired. Fabrics, however, can be effectually disinfected by hanging them on a line exposed to the sun and wind for several days. Curtains and all articles of cotton or linen, boiling or soaking them in Standard Disinfectant No. 3 for several hours, and portable articles of brass, copper, steel and gilt work by washing with a strong solution of carbolic acid (Standard Disinfectant No. 1). Colored fabrics which have been in a room during disinfection should be immediately exposed to the sun and wind. Uncolored fabrics which will not be injured by moisture should be at once soaked in water. This action will prevent further injurious action of the sulphuric acid.

Sulphur will be found a thoroughly reliable gaseous disinfectant of considerable penetrating power, if it is intelligently employed. To obtain satisfactory results, the following essentials of successful disinfection, established by repeated experiments, must be observed: (a) The infected room, or rooms, must be thoroughly closed, every crack and crevice sealed. (b) Sufficient sulphur must be used. (c) There must be ample moisture in the

room. (d) The time of exposure must be sufficient, ten hours the minimum.

In the disinfection of stores, halls, school houses and apartments or dwellings in which there are no articles to be injuriously affected by the gas, sulphur is an ideal disinfectant. Its mode of application* is simple (the simpler the mode of application the better), it is cheap, the material is accessible everywhere, and, finally, the most important of all, the action will be invariably found effective when the sulphur is properly used.

During recent years, formaldehyde gas has, to a very considerable extent, taken the place of sulphur dioxide as a gaseous disinfectant. Various methods for the use of formaldehyde have been devised—many requiring apparatus more or less expensive and complicated—all exploited with extravagant claims of merit and infallibility. None of these, however, has proven worthy of the claims made for it, while many have been found entirely worthless. The fact that the vast majority of devices, at one time exploited and enjoying wide popularity, and widely purchased by confiding health officers, have been eventually relegated to the junk heap, indicates clearly the failure of former methods of formaldehyde disinfection to meet the requirements upon them.

"Any man may make a mistake, but none but a fool will continue in it."

Almost continuously since 1897 the State Board of Health has experimented with and investigated the merits of formaldehyde. Every process and every apparatus coming to the attention of the Board has been fairly and thoroughly tested. In view of the results obtained the State Board of Health has been unable to recommend formaldehyde disinfection in the past, and is only able to unqualifiedly recommend this method of disinfection now when employed with one process in a proper apparatus.

The process now unreservedly recommended by the Board consists merely in pouring formaldehyde solution over crystals of potassium permanganate. This method offers the advantage of absolute simplicity in operation, requiring no special apparatus and no fire. In addition to this, exhaustive experimental work has demonstrated that, in practical disinfection, the method is unusually efficient, regardless of the conditions of humidity, temperatures and other factors which materially affect other methods of the use of formaldehyde.

The only apparatus required is a large open vessel, protected by some non-conductive material to prevent the loss of heat from

*See page 50 for simple method of application.

within. A 14 quart milk-pail, set into a pulp or wooden bucket, will answer every purpose, although a special container, devised for physicians and health officers, will be found of considerable advantage. This container or generator consists of a simply constructed tin can with broad, flaring top. Its full height is $15\frac{1}{2}$ inches, the height from the bottom to the flaring top being about 8 inches. The lower or round section is 10 inches in diameter, while the flaring top is $17\frac{1}{2}$ inches in diameter at its top. The container is made of a good quality of bright tin, is supplied with a double bottom with $\frac{1}{4}$ inch air space between the two layers, and is entirely covered on sides and bottom with asbestos paper. The asbestos paper and double bottom serve effectively to retain the heat which is generated by the vigorous chemical reaction occurring within, and which is essential to the complete production and liberation of the gas. This special container can be made by any tinner of ordinary intelligence and costs but a few dollars. It is illustrated on page 52.

With the room sealed, as described on page 25, and, as is essential to any form of aerial disinfection, the crystals of potassium permanganate (10 ounces to every 1,000 cubic feet of room space, or $13\frac{1}{2}$ ounces when the temperature is below 60° F.) are placed in the container. Over this salt is poured "formalin," or the 40 per cent aqueous solution of formaldehyde (24 ounces to every 1,000 cubic feet of room space, or 32 ounces when the temperature is below 60° F.). The formaldehyde gas is promptly liberated by the vigorous chemical reaction of the formalin and potassic salt and rises from the generator in immense volume in the form of an inverted cone. It is consequently necessary that all preparations be made in advance, and that the operator leave the room at once on the combination of the two chemicals.

The door or window of exit will be promptly closed and sealed, and the room left closed for at least four hours.

As in all methods of disinfection, success largely depends upon the care which is exercised and the attention which is given to every detail. Simple as the method is, neglect of any of the following points may result in complete failure:

The sick room is not the place for experiments.

1. The room should be sealed and prepared as described on page 25.

2. The potassium permanganate (10 ounces to every 1,000 cubic feet of room space, or $13\frac{1}{2}$ ounces at temperature below 60° F.) should be placed in the apparatus or generator. *The permanganate must be put in before the formaldehyde solution.*

3. The 40 per cent formaldehyde solution (24 ounces to every 1,000 cubic feet of room space, or 32 ounces at temperature below 60° F.) should then be poured over the permanganate.

4. As the gas is given off in immense volume immediately after the mixture of the formaldehyde and permanganate, the operator must leave the room at once. All preparation must have been finished in advance.

5. The door or window of exit must be promptly closed and sealed, so that there will be no escape of gas, and the room should be left closed for four hours.

6. The room should be thoroughly cleaned after disinfection. All out-of-the-way places, window ledges, moldings, etc., should be washed with Standard Disinfection No. 3 (see page 50). The floors should receive careful attention and the solution should thoroughly wet the dust and dirt in the cracks.

Whenever practicable the special generator previously described should be used, and health officers and physicians should have several such containers on hand. In the absence of such a container, however, a milk pail may be used, as indicated on page 50. In an emergency use any tin pail or crock, of *proper* size, but be sure and *well heat* the pail or crock before putting in the chemicals. This heating is very important to the proper generation of the gas.

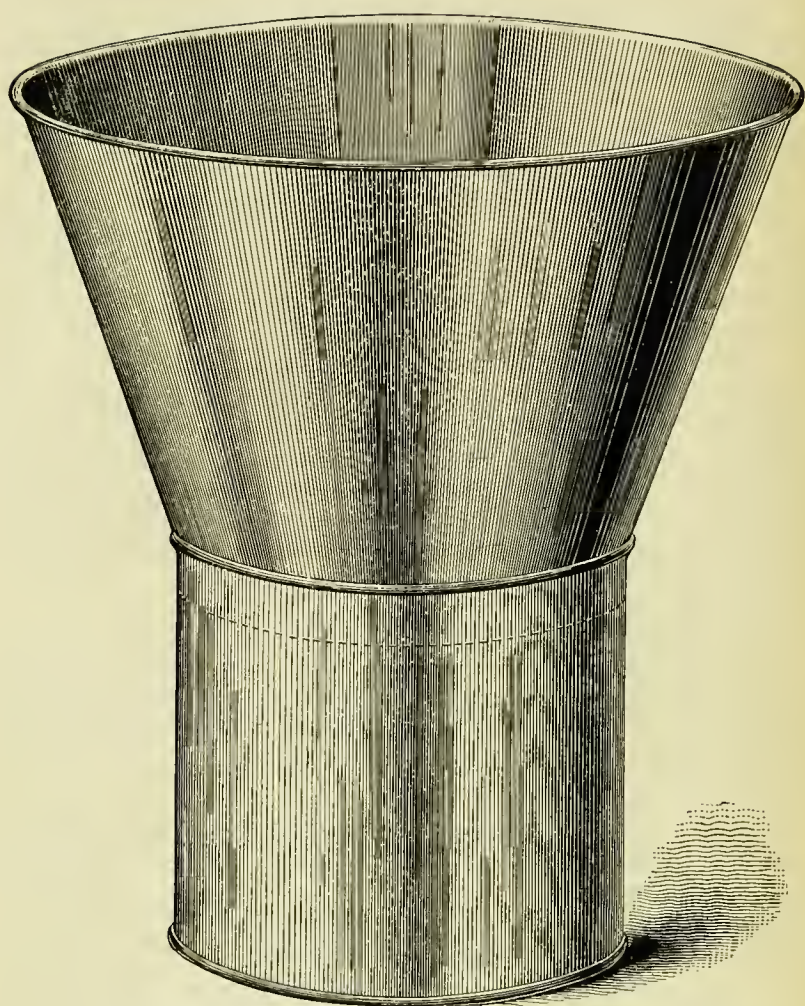
“Lingering labor often comes to naught.”

Care must taken not to place too much formaldehyde in a single container. The reaction is violent and there is great effervescence and bubbling. If the room is too large to be disinfected with one generator, use as many more as are required and place in each only a reasonable amount.

If good results are to be attained, care must be exercised to secure the best quality of formaldehyde solution. Secure the highest grade 40 per cent aqueous solution on the market. Good formaldehyde is not expensive. Inferior formaldehyde is dear at any price. Its use may bring about most unfortunate results.

The fine, needle-shaped crystals of potassium permanganate are better than the rhomboid crystals. See that you get crystals of potassium permanganate. Do not accept the dust, which often contains impurities.

Prepare the room and its contents as described on page 25, but remember that books cannot be disinfected with formaldehyde gas.



CONTAINER FOR GENERATING FORMALDEHYDE GAS.
(Formaldehyde-Potassium permanganate method.)

The following quantities may be used safely in the containers recommended:

14 quart milk-pail,	Formaldehyde, 24 ounces;
	Permanganate, 10 ounces.
Special apparatus described on page 50, and illustrated opposite.	
	Formaldehyde, 32 ounces;
	Permanganate, 13½ ounces.

Larger quantities than these should not be used.

Don't use "Formaldehyde Candles." Don't rely on the apparatus which the energetic and anxious-to-make-a-sale tradesman tells you is better than that recommended by the State Board of Health.

Entire dependence should not be placed upon any aerial disinfectant, even though its penetrating power be great. There should be a thorough "house cleaning" after the exposure to the gas, and the liberal application of a solution of corrosive sublimate to all exposed surfaces in the room and a thorough outdoor airing of its contents.

"Whatever measures are adopted should be made thorough.

"Measures, good or bad, half done are worse than useless, as they give a fancied security.

"Small-pox can not be suppressed without the expenditure of money.

"The more promptly you act the less it will cost.

"When in doubt act on the safe side.

"Finally, the following motto is offered for your banner in small-pox work:

"Isolate, Vaccinate, Disinfect."

Published by order of the State Board of Health.

JAMES A. EGAN, M. D.,

Secretary.

STANDARD DISINFECTANTS

The following are simple, cheap and reliable disinfectants.

STANDARD DISINFECTANT No. 1.

Dissolve chloride of lime of the best quality in water, in the proportion of six ounces to the gallon.

Use one quart of this solution for each discharge from the patient. Discharges from the mouth and throat should be received in a cup half full of the solution, and those from the nostrils upon soft cotton or linen rags, which should be immediately burned.

The chloride of lime must be of the best quality. Poor chloride of lime is worthless. The solution should be made when required.

Instead of chloride of lime, carbolic acid may be used in the strength of six and one-half ounces to the gallon of water.

STANDARD DISINFECTANT No. 2.

Dissolve corrosive sublimate and muriate of ammonia in water in the proportion of two drachms (120 grains— $\frac{1}{4}$ ounce) of each to the gallon. Dissolve in a wooden tub, barrel or pail, or an earthen crock.

Use for the same purposes and in the same way as No. 1. Equally effective, but slower in action. This solution is odorless, while the chloride of lime solution is often objectionable in the sickroom on account of its smell.


STANDARD DISINFECTANT No. 3.


Dissolve one drachm (60 grains— $\frac{1}{8}$ ounce) of corrosive sublimate and muriate of ammonia in one gallon of water. Dissolve in a wooden tub, barrel or pail, or an earthen crock.


Use for the disinfection of soiled underclothing, bed linen, etc. Mix solution and immerse articles for two hours. Then wring them out and boil them.

Mixed with an equal quantity of water the solution is useful for washing the hands and general surfaces of the bodies of attendants and convalescents. The latter only by direction of the physician.

Good chloride of lime should contain at least 25 per cent of available chlorine. It may be purchased by the quantity at $3\frac{1}{2}$ cents per pound. The cost of the standard solution recommended is therefore about 1 cent a gallon. A clear solution may be obtained by filtration or by decantation, but the insoluble sediment does no harm, and this is an unnecessary refinement.

 Chloride of lime, carbolic acid and corrosive sublimate are deadly poisons.

 Solutions of corrosive sublimate must not be made or kept in a metal vessel. Use a wooden tub, barrel or pail or an earthen crock.

 Solutions of chloride of lime, carbolic acid and corrosive sublimate will injure lead pipes if passed through them in large quantities without free flushing.

STANDARD DISINFECTANT No. 4.

MILK OF LIME (QUICK LIME).

Slack a quart of freshly burnt lime (in small pieces) with three-fourths of a quart of water—or, to be exact, 60 parts of water by weight with 100 of lime. A dry product of slack lime (hydrate of lime) results. Make milk of lime not long before it is to be used by mixing one part of this dry hydrate of lime with eight parts (by weight) of water.

Air-slacked lime is worthless. The dry hydrate may be preserved some time if it is enclosed in an air-tight container. Milk of lime should be freshly prepared, but may be kept a few days if it is closely stoppered.

Quicklime is one of the cheapest of disinfectants. The solution can take the place of chloride of lime, if desired. It should be used freely, in quantity equal in amount to the material to be disinfected. It can be used to whitewash exposed surfaces, to disinfect excreta in the sick room or on the surface of the ground, in sink, drains, stagnant pools, etc.



SMALL-POX IN ILLINOIS.
"NEVER VACCINATED."

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Illinois. State
board of health.

Small-pox.

Call no.

Inoculation

Vaccination

